

Designation	DIN	EN Nr.	UNS (ASTM)	LMSA
<b>CuMg0.6</b>	-	-	C18665	<b>B145</b>

## Chemical composition

Cu	Mg	P	Others
Balance	0.40 - 0.80	0.01 max	≤ 0.50

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

## Main technical properties and features

STOL®78 is Copper-Magnesium alloy with a high magnesium content of around 0.60 %, magnesium addition improves cold workability and mechanical strength of copper. Moreover, the presence of magnesium increases the softening temperature to about 350 °C. The alloy presents good formability at medium strength and high electrical conductivity as well as good stress relaxation. Compared to copper, this alloy presents better capability to withstand static and dynamic loads even at elevated temperatures. STOL®78 alloy is typically used in the automotive, electrical and electronic industry. STOL®78 presents good weldability, good soldering and brazing properties, similar to those of unalloyed copper. This alloy presents good galvanizability.

## Typical uses

STOL®78 is mainly used in the automotive industry for switches, relays, contacts, terminals and connectors. This alloy is also used in components for the electrical industry such as contacts and switches, connectors, terminals, stamped parts, semiconductor components, junction box, etc.

## Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
<b>Rolled products</b>	Strip in coils <sup>[1]</sup>	0.010 - 0.800	1.5 - 200.0	-
	Strip as sheets <sup>[1]</sup>	0.010 - 0.800	10.0 - 200.0	100 - 3000

<sup>[1]</sup> Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

## Mechanical properties of strips

Temper	R <sub>m</sub> (N/mm <sup>2</sup> )	R <sub>p0.2</sub> (N/mm <sup>2</sup> )	A <sub>50mm</sub> (%)	Hardness HV	R/t (90°) G / B <sup>[1]</sup>
R380	380 - 460	330 min	15 min	115 - 145	0 / 0
R460	460 - 520	410 min	10 min	140 - 165	0.5 / 1
R520	520 - 570	460 min	8 min	160 - 180	1 / 2.5
R570	570 - 620	500 min	6 min	175 - 195	2.5 / 5
R620	620 min	550 min	3 min	190 min	3 / 6

<sup>[1]</sup> Minimum bend radius at 90°. R = radius, t = strip thickness, G = "Good way", perpendicular to rolling direction and B = "Bad way", parallel to rolling direction. Strip thickness ≤ 0.50 mm.

## Physical properties

Modulus of elasticity	kN/mm <sup>2</sup>	130
Poisson ratio		0.34
Density	g/cm <sup>3</sup>	8.80
Melting point	°C	1077
Linear dilatation coefficient (20 - 300°C)	10 <sup>-6</sup> ./°C	17.3
Thermal conductivity at 20°C	W/m K	270
Heat Capacity at 20°C	J/(kg. K)	0.32
Electrical conductivity at 20°C	MS/m	36
Electrical conductivity at 20°C	% IACS	62

## Tolerances (strip and foil)

Thickness	Thickness (mm)		EN Standard		Lamineries MATTHEY		
	≥	<	10140 Precision	10258 Precision	LMSA Standard	LMSA Precision	LMSA Extreme
<p>The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.</p> <p>Our "LMSA Precision" and "LMSA Extreme" tolerances are available upon request.</p>	-	0.025	-	-	-	-	± 0.001
	0.025	0.050	-	-	± 0.003	± 0.002	± 0.0015
	0.050	0.065	-	± 0.003	± 0.003	± 0.0025	± 0.002
	0.065	0.100	-	± 0.004	± 0.004	± 0.0035	± 0.003
	0.100	0.125	± 0.005	± 0.006	± 0.005	± 0.004	± 0.003
	0.125	0.150	± 0.005	± 0.006	± 0.005	± 0.005	± 0.004
	0.150	0.250	± 0.010	± 0.008	± 0.008	± 0.006	± 0.004
	0.250	0.300	± 0.010	± 0.009	± 0.009	± 0.007	± 0.005
	0.300	0.400	± 0.010	± 0.010	± 0.010	± 0.007	± 0.005
	0.400	0.500	± 0.015	± 0.012	± 0.012	± 0.008	± 0.006
	0.500	0.600	± 0.015	± 0.014	± 0.014	± 0.010	± 0.007
	0.600	0.800	± 0.015	± 0.015	± 0.015	± 0.010	± 0.007
	0.800	1.000	± 0.015	± 0.018	± 0.018	± 0.012	± 0.009
	1.000	1.200	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
	1.200	1.250	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
1.250	1.500	± 0.020	± 0.020	± 0.020	± 0.015	± 0.014	
<b>Width</b>	Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.						
<b>Camber</b>	Width (mm)		Camber max. (mm/m)				
<p>Our tolerance "LMSA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.</p>	>	≤	LMSA Standard		LMSA Extreme		
			≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm	
	3	6	12	-	6	-	
	6	10	8	10	4	5	
	10	20	4	6	2	3	
20	250	2	3	1	1.5		
<b>Surface</b>	Special surface qualities upon request						
<b>Flatness</b>	Special requirement on the longitudinal or transversal flatness upon request						

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